

# Prosjektbeskriving (Project plan)

## Sustainable Cruises: Understanding and Optimizing People, Planet and Profit

### DEL 1: Innovasjonen (Innovation)

#### 1. Overordna idé (Innovation idea)

Cruise tourism in Norway has grown rapidly, and makes a significant contribution to income generation and employment. However, various questions remain unanswered regarding the sector's profitability, distribution of benefits, impacts on other tourism segments, as well as its contribution to touristic value chains and specifically the question of local value creation in rural areas outside of the large city harbour areas. There are various environmental impacts and social conflicts regarding the development of new ports or large visitor numbers concentrated in time and space, which have caused many debates about the desirability of cruise tourism in Norway. The proposed project will look into these interrelationships, with the overall goal to stimulate more profitable and greener consumption.

#### 2. Innovasjonsgrad (Innovation level)

The research project is expected to contribute significantly to innovation in the tourism business cluster by providing new knowledge relevant for innovation. It is also relevant to stimulate local control and commitment, increase community revenue and profits from the cruise sector, and enhance the quality of life in rural societies. Specific focus is on how the cruise sector can be optimized with regard to tourist spending and environmental impacts, through more targeted innovations of land-based products and services and through better distribution of tourist numbers in time and space. This innovation-focused research has an integrated viewpoint that considers environmental, social and economic dimensions.

#### 3. Verdiskapingspotensial (Potential value creation)

The global cruise sector has grown rapidly since the 1970s, from an estimated 600,000 (Dowling 2010) to an estimated 16.4 million passengers in 2011 (CLIA 2012). Annual passenger growth has averaged 7.5% per year between 1980-2011, with almost 73% of all passengers in 2010 being sourced from North America. This share is constantly declining, however, as cruises become increasingly popular around the world. CLIA (2012) reports an average length of cruises of 7+ days. There has also been growth in the capacity of cruise ships, and in 2012, a total of 14 ships with 17,984 beds were introduced. By 2015, another 25 ships are anticipated to join the global cruise fleet, representing an investment of US\$10 billion.

Cruise holidays have become increasingly popular, despite various high level accidents in 2012/2013 (e.g. BBC 2013). Top destinations include, according to CLIA (2012), Alaska, the Caribbean, Mediterranean/Greek Islands, European rivers, Panama Canal, Europe, South America, Hawaii, South Pacific and Baltics/Scandinavia. As evident from Table 1, "Europe" and "Scandinavia" represent a relatively small share of global bed days, but there has been a 24.6% increase in bed days over the period 2006-2011.

**Table 1: Top geographic markets for cruise tourists (2011)**

|     |  |  |
|-----|--|--|
| 1.  | <b>Caribbean</b>                       | 36.2 million bed days (33.7 percent)   |
| 2.  | <b>Mediterranean</b>                   | 21.99 million bed days (20.44 percent) |
| 3.  | <b>Europe/Scandinavia</b>              | 8.47 million bed days (7.9 percent)    |
| 4.  | <b>Alaska</b>                          | 6.65 million bed days (6.18 percent)   |
| 5.  | <b>Bahamas</b>                         | 6.5 million bed days (6.05 percent)    |
| 6.  | <b>Mexico (West)</b>                   | 3.51 million bed days (3.27 percent)   |
| 7.  | <b>Transatlantic</b>                   | 3.1 million bed days (2.9 percent)     |
| 8.  | <b>Australia/NewZealand/S. Pacific</b> | 2.9 million bed days (2.7 percent)     |
| 9.  | <b>Trans Canal</b>                     | 2.69 million bed days (2.5 percent)    |
| 10. | <b>South America</b>                   | 2.6 million bed days (2.4 percent)     |
| 11. | <b>Hawaii</b>                          | 2.19 million bed days (2.14 percent)   |

Source: CLIA 2012

Norway is an important country for cruises in Europe. Preliminary data for 2012 suggests that 588,000 cruise passengers called in on at least one Norwegian port, a figure that has more than doubled since 2003 (Cruise Norway AS 2012). The total number of bed days spent by cruise passengers in Norway appears to be unknown, though there is some evidence that cruise tourists have shorter lengths of stay than other tourists (Larsen et al. 2013). In terms of markets, Germans represent the most important group of visitors in Norway, with 28% of arrivals, followed by the UK (26%), the US (10%), Spain (7%), Italy (6%), France and

Netherlands (each 4%), the remainder including a wide variety of other nationalities (Cruise Norway AS, October 2012). Ship traffic takes place along the whole Norwegian coastline, though mostly along the western coast of Norway, and there are currently 35 cruise ship ports in Norway.

#### 4. Forskningsbehovet (Need for research)

While growth in cruise tourism in Norway makes this sector increasingly important from an economic viewpoint, generating income and employment, questions are increasingly raised regarding its profitability, distribution of benefits, impacts on other tourism segments, as well as its contribution to touristic value chains. There are also serious questions regarding the sector's environmental impacts and social conflicts regarding the development of new ports or large visitor numbers concentrated in time and space, which have caused many debates about the desirability of cruise tourism in Norway. The proposed project will look into these interrelationships, with an overall goal of defining strategies that can help to minimize environmental and social conflicts, while maximizing economic benefits for all parties. The following section outlines the current situation with regard to these issues, based on the distinction 'profit, planet and people'.

##### *Profit*

Various studies have been carried out to understand the economic implications of cruise tourism in Norway. In 2005, a first study was carried out among passengers in Lofoten, focusing on purchases during excursions, as well as other consumption (Kjensli 2005). The study was based on a passenger survey comprising 714 respondents. The survey was mainly conducted on shuttle buses transporting passengers between the (remote) cruise port near Leknes and the various visiting points in Lofoten. Nearly three out of four passengers (72%) participated in organized shore excursion, on average, they spent NOK 190 on souvenirs, refreshments etc, while they paid NOK 756 for full day excursions (18%) and NOK 427 for half day excursions (82%). Total cruise expenditures are estimated to NOK 20 million (including ship services), of which NOK 10 million are estimated to be local turnover. Total value added is estimated to be NOK 6.7 million. Another study among cruise passengers was conducted by the Institute of Transport Economics as a part of a general study of foreign tourists' consumption in Norway in 2005 (Dybedal et al 2006). The survey included a total of 972 respondents, and questionnaires were distributed and collected in Oslo, Bergen and Tromsø. On average, the cruise tourist participated in 2.4 organised shore excursions, and made in addition 1.9 non-organised shore visits in Norwegian ports (the average duration of trip was 10.7 days). They spent NOK 440 on excursions (exclusive cruise line commission), shopping, refreshments etc. per shore visit. In total, cruise tourists' consumption in Norwegian ports were estimated to NOK 625 million, of which NOK 340 million were related to organized shore excursions.

In 2006, a cruise passenger study was made in Oslo by Horwath Consulting and Institute of Transport Economics (Winther and Dybedal 2006). Questionnaires were filled in inside the security zone on return to ship. 95% of the passengers made a shore visit, of which 58% participated in shore excursions. Tourists not participating in organized shore excursions spent NOK 250 in Oslo during their shore visit. Excursionists spent NOK 134 in addition to the price of the excursion, while the actual price paid by the cruise line per excursion was estimated to NOK 250. In total, cruise passenger consumption in Oslo 2005 was estimated til NOK 76 million. In addition, cruise line expenditures and crew consumption on shore was estimated to NOK 39 million and NOK 12 million, respectively. In total, direct effects were NOK 129 million and indirect effects NOK 77 million.

In 2010, a survey was carried out by Grontmij/Carl Bro (2010) for the Ministry of Trade and Industry to assess the direct and indirect economic effects of cruise tourism in Norway. The study concluded that the total economic value of the cruise sector for Norwegian cities and towns was NOK 2.0 billion (Euro 250 million). This is based on an estimated daily expenditure of NOK 745, estimated from a combination of the respondents' de facto consumption ("so far") and expected consumption the rest of the journey. The study also found that the sector creates direct employment for 1,088 people throughout the year (rising to 1,592 in high season). The survey also considered indirect and induced effects, estimating that these double the value of the cruise sector to NOK 4.0 billion, and the number of jobs to 2,176 throughout the year (rising to 3,184 in the high season). The survey was based on 2073 interviews conducted on board 12 different cruise ships and during excursions, using questionnaires. Even though Grontmij/Carl Bro claim that interviews are representative with regard to the types of ships, nationalities of the tourists and cruise products, the description of the methodology indicates many inconsistencies both in data collection and analysis. Problems are further compounded by a comparison with another study (European Cruise Council 2009), which reveals considerable differences in results. This study also suffers from a descriptive analysis of the data, where multivariate analyses, for instance to derive clusters, as well as tests of significance levels would have

yielded more robust results. The overall value of this study is thus uncertain (a memo on these issues has been written by Transportøkonomisk Instituttet in 2010).

Finally, an in-situ study was conducted in Oslo by G.P. Wild for VisitOSLO, including 1,444 passengers in the period June-October 2012. Results show that shore visiting passengers in Oslo spent NOK 600, of which NOK 250 was payment for shore excursion (average for all shore visitors, of which shore excursion participants constituted 48%). In total, cruise passenger consumption was estimated to 25 million Euro (NOK 190 million), excluding cruise line commissions from shore excursion sales. Somewhat lower results were reported in the only study published in a scientific journal (Larsen et al. 2013), reporting spending of NOK 503 per day. The study found, however, that cruise tourists overstated their spending by more than 50%, and that spending levels were far lower than for other tourists (NOK 742 per day).

This review of existing studies shows that there are considerable differences in findings, which also have to be seen in the light of various inconsistencies. More profound analyses, for instance with regard to length of stay or spending, as well as motivations for travel and demand analyses for different cruise segments are missing. Without a better understanding of the demand side, it is however also difficult to design products and services to increase turnover and profits, i.e. to not only look at the current situation of the sector, but to also think about the future. Furthermore, all of the mentioned studies have focused on the value creation taking place in large city harbours, and no systematic studies have been done on the value creation taking place in rural cruise destinations like Flåm and Geiranger.

### *Planet*

Emissions from shipping are estimated to have been in the order of 1046 Mt CO<sub>2</sub> in 2007, which corresponds to 3.3% of global CO<sub>2</sub> emissions in that year (IMO, 2009). According to the WEF (2009), global ocean-going cruise emissions for 2005 were estimated at 34 MtCO<sub>2</sub>, less than 5% of global shipping emissions. While the relative share of cruise tourism in emissions is thus low, this is the most energy-intensive form of tourism on a per passenger basis (Eijgelaar et al. 2010). This has also been shown in a study of cruise ship emissions in Norway, which were found to range from 93.9-615.7 kg CO<sub>2</sub> per passenger day (Walnum 2011). These values can be compared to global average emissions of 4.3 t CO<sub>2</sub> per person and year. In addition, ships emit significant amounts of particulate matter (PM), sulfur oxides, and nitrogen oxides (Corbett and Koehler 2003; Endresen et al. 2003; Eyring et al. 2005; Corbett et al. 2007). Shipping-related fine PM emissions and ground-level ozone contribute to approximately 60,000 cardiopulmonary and lung cancer deaths annually at a global scale, and that with the expected growth in shipping activity, annual mortalities could increase by 40% by 2012.

The International Maritime Organization (IMO 2009) anticipates that, in the absence of mitigation policies, emissions from shipping will grow by 1.9–2.7% per year until 2050, leading to overall growth by 150–250 % in the period 2007–50. As reported by Eijgelaar et al. (2010), tourism is an important component in this growth: worldwide cruise demand has grown steadily at an average annual rate of 7.4% since 1990 (CLIA, 2009), and emission growth from this sector has consequently been faster than from shipping more generally. For the year 2007, IMO estimates the global fuel use of all passenger ferries and cruise-ships at 31.3 Mt, corresponding to 96 Mt CO<sub>2</sub> (IMO 2009). The WEF (2009) estimates that emissions for ocean-going cruises will rise by 3.6% per year, reaching 98 Mt CO<sub>2</sub> by 2035. This poses new challenges for the sector, as it necessitates innovation in machine technology and ship design, as well as, possibly, an increasing focus on emission trading or offsetting as an option to „neutralize“ emissions from the sector. This is likely to entail additional costs.

The overall goal with regard to pollution is thus to understand the costs of current pollution levels, as well as options to reduce pollution through technology or policy measures, and implications of such measures for the sector. For instance, if particularly emission intense ships were to be restricted, if ships were forced to use land-based electric energy when in port, if passenger duties based on emission intensities were introduced, how would this affect the sector economically as well as in terms of restructuring and innovation?

### *People*

Various social problems and issues characterize cruise tourism in Norway. This partially refers to the rapid development of the sector, with cruise traffic in Norwegian harbours doubling from 254,000 to 588,000 in less than 10 years (Table 2). As traffic is concentrated both in time (mostly in the summer season) and space (a total of 35 ports), this has led to perceptions of both locals and land-based tourists that popular fjord locations are overcrowded. Ship size, and thus the number of people arriving at a given time in one location, is a related issue: The largest ship in Norwegian waters currently appears to be the Norwegian Epic (2010) with accommodation for 4,200 passengers (Grontmij/Carl Bro 2010). Because of these developments, Fjord

Norway may be running a risk of losing its status as one of the world's foremost World Heritage Sites. In other areas, the planned development of cruise ports has led to considerable controversies about desired futures in small fjord communities.

**Table 2: Cruise traffic in Norwegian harbours, 2003-2012** (Cruise Norway AS, October 2012)

| Year   | Cruise calls | Number of cruise passengers* |
|--------|--------------|------------------------------|
| 2003   | 1 358        | 254 000                      |
| 2004   | 1 401        | 302 000                      |
| 2005   | 1 497        | 324 000                      |
| 2006   | 1 504        | 355 000                      |
| 2007   | 1 452        | 332 000                      |
| 2008   | 1 633        | 381 000                      |
| 2009   | 1 572        | 430 000                      |
| 2010   | 1 647        | 411 000                      |
| 2011   | 1 679        | 457 000                      |
| 2012** | 2 064        | 588 000                      |

With regard to visitors, it remains unclear which types of tourists arrive, what their specific interests and motivations are, and which factors drive their overall satisfaction and revisitation behaviour, i.e. whether there is a willingness to visit different ports at different times of the year to achieve better distribution in time and space, whether there is any kind of loyalty towards the destination or cruise tourism. Crowding resulting from the arrival of several and/or large cruise ships may also have an impact on other tourists, which may belong to more exclusive, high-spending segments. Earlier research has established discrimination between individualistic-romantic and collective tourists. The idea that tourism 'destroys places' is partly linked to a romantic-individualistic viewpoint, and romantic visitors are inclined to seek places with a seemingly low tourism level and a relatively small number of visitors. This is also related to tourists themselves as co-producers of holiday experiences and place ambience; it is known that some visitors may not be appropriate because their presence conflicts with the enjoyment of others (Morrison 1989). Following Urry's (1990) reasoning; romantic tourists are those who desire to experience landscapes and nature without the presence of other tourists. Nature-oriented tourists are typically characterised by an emphasis on solitude and privacy. In the summer of 2000, about 60% of the foreign motor tourists in Northern Norway agreed that they generally prefer to experience nature without the presence of other tourists, while only 10% disagreed. Some 31% neither agreed nor disagreed in this statement (Jacobsen 2004). This study further shows that half of the romantic self-drive tourists in this region thought that escalating tourism has caused many places to lose their distinctiveness, measured up to only one in five of the other motor tourists. It has also been shown in other Norwegian contexts (Sognefjorden/Sognefjell and Hardanger) that traffic pressure is perceived negatively by domestic and international leisure travellers on national tourism routes (Jacobsen & Grue 1997).

## DEL 2: FoU-aktivitetene (R&D activities)

### 5. Mål (Goal)

The overall goal is to define options to optimize the cruise sector from integrated environmental, social and economic viewpoints. For this, the following research questions will be investigated:

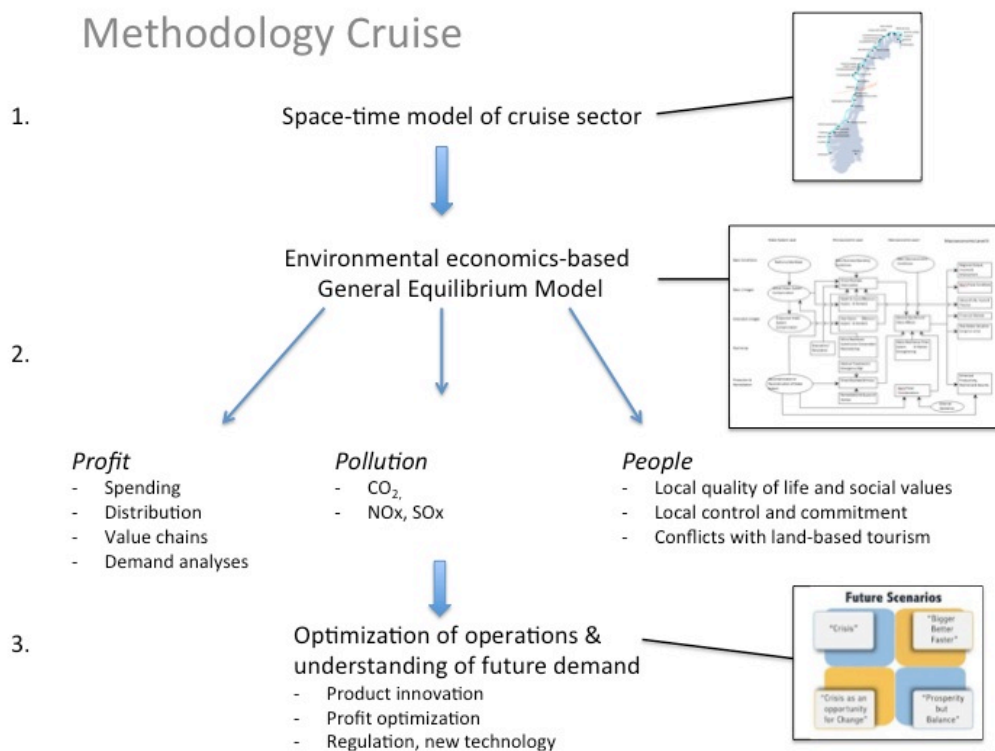
- 1) Place/Distribution: Which visitation intensities do currently exist along the Norwegian coast, i.e. when do how many ships with which passenger numbers frequent coastlines and ports? How could distribution be in the future, given port development plans and attraction potentials?
- 2) Profit/Economics: How can the cruise sector be described in a general equilibrium model? Which spending levels do exist, and how are money flows distributed in time and space, and between local, national and international stakeholders? How is value creation from cruise tourism distributed between the major city harbour areas and rural cruise destinations in Norway? Which factors influence spending levels and money flows and do cruise experiences inspire land-based tourism?
- 3) Sustainable tourism development: How can future developments stimulate local control & commitment, increase community revenue, and enhanced quality of life in small, rural societies? Which costs are

associated with current pollution levels, and how would these be affected by various measures to curb pollution? How does pollution from cruise tourism affect other forms of tourism? How can small communities profit more on earnings from cruise?

- 4) Understanding future demand: What demand factors drive cruise tourism to grow faster than land-based tourism? How can the sector be optimized with regard to tourist spending through more targeted innovations of land-based products and services and through better distribution of tourist numbers in time and space?

### 6. FoU-utfordring og -metode (R&D issues and method)

The overall goal with this project is to provide reliable data on the economics of cruise tourism in Norway, i.e. to replace and substitute the fragmented and unreliable database that currently exists with regard to the sector's economic impacts. Furthermore, the project will specifically look at the flow of money and value chains, i.e. local and regional profits, value added and the role of local and regional industries in the value chains, resulting in a profound analysis of the interrelationships between the involved actors. The project will also seek clarification on various claims such as "Cruises function often as a guiding for those seeking to later return as 'normal' tourists" (Farstad et al. 2011). As emphasized by Forsyth and Dwyer (1995), there is also a need to understand whether cruise operations attract new visitors or re-direct visitors from other tourism styles, and whether there are cruises that are a substitute for shore-based holidays. Current analyses have focused on the use of multipliers in simple input-output models (e.g. European Cruise Council 2012), though General Equilibrium Models (GEM) have been recommended by tourism economists (Dwyer and Forsyth 1993). It is thus suggested to develop a GEM that can also assess other effects, such as the costs of pollution, etc. Such models have recently been developed under more stringent requirements, to be economically sound and to be useful as a basis for policy makers and they can build on national approaches to defining value (e.g. Aall et al. 2012a).



**Figure 1: Methodology: general approach and data collection**

In order to achieve this, the project will first of all seek to understand the movements of cruise tourists in time and space. For this purpose, a model will be built that details all cruise movements in Norway with regard to ships, routes, calls at ports, land-based excursions made, and passenger numbers. Data will be incorporated over time, i.e. the model will be capable of showing data for these parameters for any given day of the year for any location. This represents step 1 in the Methodology (Figure 1).

In step two, a general equilibrium model will be built that is capable to capture money flows. The model will consider expenditures by operators, as well as passengers, for the latter including a distinction of general payments for the journey, as well as shore expenditures specifically. Due to the complexity of the method to

be developed to assess monetary flows, multipliers, and value chains, a workshop is planned, where both details of the types of expenditures will be discussed (Forsyth and Dwyer 1995), but also considering recent methodological summaries as provided by Brida and Scuderi (2013), and including more recent frameworks as published by Gui and Russo (2011), and specifically the Norwegian situation and previous studies in Norway (Farstad and Dybedal 2010; see above summary). As the general equilibrium model is to also include the cost of environmental pollution, data will also be assessed for this aspect, considering the latest frameworks for the assessment of these costs, as well as assessments of the cost and impact of various measures (political and technical) to make the sector more environmentally benign.

Finally, the methodology used for the market analysis is multifaceted. For this purpose, an exploratory study of cruise tourists' demand patterns based on in-depth interviews onboard the cooperating cruise ships will be carried out. These will be used to describe the quality of existing cruise offerings in the form of 1) associative maps and 2) reported satisfaction scores of various cruise-experience-modules (such as land-based tours and activities). This will be followed up in a second study based on a descriptive and quantitative survey methodology, in which actual cruise tourists are completing structured questionnaires containing a set of scales designed to detect: 1) general and specific travel motivators, 2) demand of potentially new attractions/activities/services onshore, and 3) measures of "willingness to pay" and "willingness to buy" certain new land-based travel offerings. The data from these investigations will be supplied with data on actual tourism spending derived from the national data set on E-payment handled by Nets Norway AS. For a major category of tourism expenditures, food and beverages, E-payment on a national scale currently rates for 65% of the total payments - the rest being "physical" money (Aall et al, 2012b). Results and findings from the RFFVEST project "Tourism elasticities" will be reused in this context. Conjoint analyses to rank determinants of choice and willingness to buy/pay for local attractions will be carried out. Based on results, scenarios will be developed with the overall goal to make suggestions to optimize cruise tourism (step 3).

## 7. Organisering og prosjektplan (Organisation and plan)

### Partners (private sector)

Fjord Norge AS, the regional tourist board and destination marketing company for Western Norway covering Rogaland, Hordaland, S&Fj and M&R with 200 member organisations including NCE Tourism Fjord Norway with 110 partner organisations covering tourism industry and organisation, regional policy makers, education and R&D. NCE Tourism - Fjord Norway has been established as a "centre for innovation" that creatively and systematically explores the potential for converting the region's unique "ingredients" in the form of new products and experiences, all closely connected to ambitions of developing deeper understanding of the global community and the commercial potential that the global target group represents. The partners in the NCE Tourism – Fjord Norway project have the ambitions of positioning Fjord Norway as the world's most attractive destination for nature and adventure holidays. This tourism business cluster includes all key partners needs for the R&D to understand and optimizing the People, Planet and Profit interrelationships. Cruise operators, local activity companies, transport companies, the key hotels, guide service organizations, museums and attractions as well as local and regional policy makers.

### Partners Research national

Vestlandsforskning, Professor Stefan Gössling (Project Leader)

SNF/NHH, Professor Nina M. Iversen, Professor Leif Hem

Transportøkonomisk Institutt (TØI) (Petter Dybedal)

Universitetet i Stavanger (Jens Kristian Steen-Jacobsen)

Vestlandsforskning will lead and co-ordinate the research activity. TØI will be engage in developing models and tools and statistical analyses, i.e. the collection and preparation of data, the setting up of a database, as well as analytical statistical evaluations. Universitetet i Stavanger will be in charge of data collection (filling in questionnaires) and the practical side of the fieldwork. SNF/NHH will also be engaged in data collection, the development of models and tools, and the evaluation of results. On all major issues, the three research institutions will co-operate to identify consensus approaches.

### Project plan: Main activities and deliverables

| Goals and deliverables for main activities  | Costs<br>(1.000) | Res-<br>ponible | Participants                        |
|---|------------------|-----------------|-------------------------------------|
| WP 1: Space-time model of cruise tourism<br>In this WP, a model will be developed that can capture the movement of cruise ships and passengers in time and space. The | 780'<br>NOK      | TØI             | Fjord Norge,<br>NCE<br>Tourism, VF, |

|   |               |     |   |
|---|---------------|-----|---|
| model will allow to determine the distribution and concentration of cruise passengers for any location and time in a given year in the past, with an option to project the future if itineraries are made available by cruise companies.  |               |     | SNF, UiS                                |
| <p>WP 2: General Equilibrium Model</p> <p>This WPs overall goal is to develop a General Equilibrium Model that discloses the interrelation between actors in the cruise industry by setting “Profit”, “Planet” and “People” into relationship. The work package has an interdisciplinary approach and builds upon results, facts and models from the sub-packages WP 2.1, WP 2.2 and WP 2.3. These include Profits (WP 2.1), i.e. spending and monetary flows; Planet (WP 2.2.), i.e. internalized environmental costs; and People (WP 2.3), i.e. an assessment of local conflicts with an internalization of costs, as well as tourist-type related impacts (see Methodology for descriptions of content in these categories).</p>   | 1.450’<br>NOK | SNF | Fjord Norge, NCE Tourism, VF, TØI, UiS  |
| <p>WP 3: Demand analysis</p> <p>This WP investigates novel land-based products and service offerings demanded by cruise tourists, i.e. 1) “willingness to buy” and 2) “willingness to pay”, as seen in relation to certain innovations of land-based tourist experiences. Motivators are examined with regard to general cruise-consumption drivers (travel convenience, all-inclusive convenience, booking convenience, pre-packaged experience convenience, cost-convenience, shopping-convenience, entertainment-convenience, bath/pampering/spa/ fitness-convenience, sun-seeking, “exotic wanderlust”) and specific niche-cruise-consumption drivers (e.g., “arctic experience”-, nature-based activity-, eco-tourism-, cultural experience-, local-gastronomy motives).</p> | 2.150’<br>NOK | UiS | Fjord Norge, NCE Tourism, VF, SNF, TØI  |
| <p>WP 4: Scenarios &amp; Management tool</p> <p>Results gained in WP 1-3 will be used to develop scenarios of possible cruise futures. These scenarios “test” various pathways for development, including the economics of various innovation processes (based on WP 3), or regulation to reduce environmental impacts. These scenarios are embedded in a management tool that will show key differences in future development paths, and allow business stakeholders and policy makers to better understand the consequences of various alternatives. This will allow for optimization of the system considering a wide range of interests. The management tool is also an operative realization and implementation of the “General Equilibrium Model” developed in WP 2.</p>    | 1.620<br>NOK  | VF  | Fjord Norge, NCE Tourism, TØI, SNF, UiS |

## 8. Sentrale milestolpar for FoU-aktivitetar (Milestones)

The timing of the key work packages (WP) are as follows

|   |                                 |
|---|---------------------------------|
| WP 1: Space-time model of cruise tourism: | 01 July 2013 – 31 December 2013 |
| WP 2: General Equilibrium Model:          | 01 January 2014 – 31 May 2015   |
| WP 3: Demand analysis                     | 01 May 2014 - 30 August 2015    |
| WP 4: Scenarios & Management tool         | 01 June 2015 – 30 June 2016     |

Each of the work package represents a set of deliverables in the form of reports, tools and scientific articles. The start and the end of each WP will represent key milestones when the project will have milestone meetings with the partners from the tourism cluster in West Norway to evaluate status and plan in detail the next phase of the project. The milestones are then: July 2013, Jan 2014, May 2014, Aug 2015 & June 2016.

### 9. Kostnader per utførende partner (i 1 000 kroner) (Costs)

| Partner                      | Pers.- og indir. kostn. | Utstyr | Andre kostnader | Totalt |
|------------------------------|-------------------------|--------|-----------------|--------|
| NCE Tourism / Fjord Norge AS | 300                     |        | 300             | 600    |
| Vestlandsforskning           | 1.500                   |        | 400             | 1.900  |
| SNF- NHH                     | 950                     |        | 200             | 1.150  |
| Transportøkonomisk institutt | 1.000                   |        | 200             | 1.200  |
| Universitetet i Stavanger    | 950                     |        | 200             | 1.150  |
| Sum                          |                         |        |                 | 6.000  |

### 10. Finansiering per partner (i 1 000 kroner) (Funding)

| Partner                                 | Eigeninnsats | Kontantar | Totalt |
|---|--------------|-----------|--------|
| NCE Fjord Norge AS                      | 600          | 2.000     | 2.600  |
| Vestlandsforskning                      | 100          |           | 100    |
| SNF- NHH                                | 100          |           | 100    |
| Transportøkonomisk institutt            | 100          |           | 100    |
| Universitetet i Stavanger               | 100          |           | 100    |
| Søkt Dei regionale forskingsfonda       | 0            | 3.000     | 3.000  |
| Total finansiering (= totale kostnader) | 1.000        | 5.000     | 6.000  |

### 11. Andre samarbeidsrelasjonar for FoU-aktivitetane (Other partners)

*Professor Dr. Larry Dwyer*, Australian School of Business, The University of New South Wales, Sydney, Australia <http://www.asb.unsw.edu.au/schools/Pages/LarryDwyer.aspx>

Larry is the president of both the International Academy for the Study of Tourism as well as the International Association for Tourism Economics. He is one of the world's foremost tourism economists, and the author of "Tourism Economics and Policy", a key publication in the field. He is on the editorial board of 21 journals, and has published a wide range of reports for NGOs, private sector and the Australian government, including the development of Tourism Satellite Accounts for all Australian States.

## DEL 3: Realisering av innovasjonen og utnytting av resultat (Exploitation of res.)

### 12. Plan for realisering av innovasjonen (Plan for exploitation)

The new knowledge developed by the project will be disseminated to the broad tourism industry cluster organized by NCE Tourism and Fjord Norge AS. The industry cluster also works in close collaboration with local, regional and national public sector organisations and policy makers. Key results will therefore directly be fed into regional business development processes, local and regional planning processes as well as more long term regional tourism strategy development. The project will also transfer the results into a permanent structure ("management tool"). Both the models and the tool will have strategic value in assessing the consequences of measures taken to develop cruises. Furthermore, the tool can be used as a monitoring platform to identify changes in the cruise industry.

### 13. Risikoelement (Risks)

This is a R&D project with partners working in different organisations with different expertise and also working together with a business cluster within the tourism industry in West Norway. In order to minimize the risks for roll-out and exploitation of results, the partners have concretised the project proposal as much as possible and have agreed on the global project tasks. Furthermore, an elaborate project management structure has been defined in order to monitor the cooperation between the F&D-partners and the business cluster to identify and investigate technical risks as soon as possible. The Management Board will appoint a Scientific & Technical Manager and will closely supervise the additional technical risks that may appear during the lifetime of the project.



#### **14. Annan samfunnsøkonomisk nytteverdi (Societal relevance)**

Cruise tourism in Norway has a broad public and societal interest based on its generation of income and employment. However questions are increasingly raised regarding its profitability, distribution of benefits, impacts on other tourism segments, as well as its contribution to touristic value chains. These are all research issues with relevance to a wide set of business sectors outside the directly involved tourism cluster.

Furthermore there are also serious questions regarding the sector's environmental impacts and social conflicts regarding the development of new ports or large visitor numbers concentrated in time and space. These issues have caused many debates about the desirability of cruise tourism in Norway. The project will contribute to preparing new and better strategies that can help to minimize environmental and social conflicts, while maximizing economic benefits for all parties.

It is anticipated that the model and tool developed as part of the project will allow a more profound discussion between the different stakeholders. We assume furthermore that the results of the project will be used by the "Vestlandfylkene" and will allow them to make more facts-based decisions, taking into consideration the integrated aspects people, planet and profit.

In addition to that, the model and tool may be used as a reference project for other such projects, be it in the travel industry or other industries with challenges with respect to the sustainability factors people, planet and profit.

For the scientific partners the project represents a strategic development of a strong R&D-network meeting key needs in the West Norway tourism industry. In addition the project will further qualify and develop the tourism research groups of the involved partners in the absence of a national tourism programme. The RFF-programme is taking a very important strategic role in the Norwegian tourism research.

#### **15. Formidling og kommunikasjon (Dissemination and communication)**

To distribute results, we will focus on organizing two stakeholder conferences, the first to gather all relevant stakeholders to identify a suitable methodology, and the second to bring together the involved scientists as well as representatives from industry, tourism organizations and government. During the conference, results will be presented in both presentations as well as in written form (final report, including executive summary). Moreover, the functioning of the management tool will be explained, and sample runs be arranged. At least three publications in scientific journals are planned to result out of this project, all in high-ranking journals.

### **DEL 4: Andre opplysninger (Other information)**

#### **16. Miljøkonsekvensar (Environmental impacts)**

The project is expected to have positive impacts for the environment. There are a series of environmental impacts and social conflicts regarding the development of new ports or large visitor numbers concentrated in time and space, which have caused many debates about the desirability of cruise tourism in Norway. The proposed project will look into these interrelationships, with the overall goal to stimulate more profitable and at the same time a greener consumption. Sustainable tourism development is one specific research issue where the project is looking which costs are associated with current pollution levels, and how would these be affected by various measures to curb pollution, and how does pollution from cruise tourism affect other forms of tourism? And the project also seeks to understand how the sector can be optimized through better distribution of tourist numbers in time and space. The new knowledge will be disseminated both to the industry and to regional, national and international policy makers.

#### **17. Etikk (Etics)**

The project raises no specific ethical questions.

#### **18. Rekruttering av kvinner, kjønnsbalanse og kjønnspektiv (Gender issues)**

The project will assure that the equality principle is reflected during the process of the project staff recruitments and during any public interactions. The project partners all give priority to gender balance in staffing both within their organisations in general and in specific project networks in particular.

#### **19. Utlysingsspesifikke tilleggsopplysninger (Specific issues from the call)**

An important question relating to tourism taking place in Western Norway is how to improve local value creation from tourism in the rural areas outside of the major city areas. This project will specifically address this question by looking at the extent cruise tourism actually contributes to local value creation in rural cruise destinations, and how this value creation might be increased in West Norway.

## Referanser (References)

- Aall, C., Brendehaug, E., and Hille, J. 2012a. *Berekraftige naturopplevingar i verdensklasse. Korleis kombinere måla om berekraftig reiseliv og auka verdiskaping i Sogn og Fjordane?* Vestlandsforskningsrapport nr. 15/2012.
- Aall, C., Heiberg, E., Simonsen, M., Walnum, H.J., Ekström, F. 2012b: *Korleis vurdere effekten av ein regional klimapolitikk? Sluttrapport frå eit prosjekt om utvikling av eit indikatorbasert system for vurdering av måloppnåing i Fylkesdelplan klima og miljø for Sogn og Fjordane fylkeskommune.* VF-rapport 7/2012. Sogndal: Vestlandsforsking
- BBC 2013. Thomson Majesty cruise ship accidents leaves five dead. Available <http://www.bbc.co.uk/news/world-europe-21403536>. Accessed 19 March 2013.
- Brida, J.G. and Scuderi, R. 2013. Determinants of tourist expenditure: a review of microeconomic models. *Tourism Management Perspectives* 6: 28-40.
- CLIA 2009. CLIA Cruise Market Overview: Statistical Cruise Industry Data through 2008. Arlington, VA: Cruise Lines International Association.
- CLIA 2012. Cruise Lines International Association (CLIA) 2012 Industry Update. Available: <http://www.cruising.org/sites/default/files/pressroom/2012CLIAIndustryUpdate.pdf> Accessed 19 March 2013.
- Corbett, J.J. and Koehler, H.W. 2003. Updated emissions from ocean shipping', *Journal of Geophysical Research, D: Atmosphere*, 108(D20): 4650.
- Corbett, J.J., Winebrake, J.J., Green, E., Kasibhatla, P., Eyring, V. and Lauer, A. 2007. Mortality from ship emissions: a global assessment, *Environment Science and Technology*, 41(24): 8512–8518.
- Dowling, R.K. ed. 2006. *Cruise Ship Tourism*. CABI Publishing, Oxon, UK.
- Dwyer, L., & Forsyth, P. 1993. Assessing the benefits and costs of inbound tourism. *Annals of Tourism Research*, 21(3), 512-537.
- Dybedal, P., Rideng, A., Haukeland, J. V. and Grue, B. 2006. Utenlandske turisters forbruk I Norge 2005. Report 823/2006. Oslo: Institute of Transport Economics.
- Eijgelaar, E., Thaper, C. and Peeters, P. 2010. Antarctic cruise tourism: the paradoxes of ambassadorship, “last chance tourism” and greenhouse gas emissions’, *Journal of Sustainable Tourism* 18: 337–354.
- Endresen, O., Soergaard, E., Sundet, J.K., Dalsoeren, S.B., Isaksen, I.S.A., Berglen, T.F. and Gravir, G. 2003. Emission from international sea transportation and environmental impact, *Journal of Geophysical Research, D: Atmosphere*, 108(D17): 4560.
- European Cruise Council 2012. *The Cruise Industry. Contribution of Cruise Tourism tot he Economies of Europe. 2012 Edition.* Prepared by G.P. Wild (International) Limited and Business Research & Economic Advisors. Brussels: European Cruise Council.
- Eyring, V., Köhler, H.W., van Aardenne, J. and Lauer A. (2005) ‘Emissions from international shipping: 1. The last 50 years’, *Journal of Geophysical Research*, 110: D17305
- Farstad, Eivind and Petter Dybedal 2010: *Økonomiske virkninger av reiseliv i Stryn og Hornindal i 2009.* TØI-report 1077/2010. Oslo: Institute of Transport Economics.
- Horwath Consulting 2005/2008. *Analyse av markedspotensiale cruise for Eidfjord kommune (2005) og Ørsta kommune (2008).*
- Horwath Consulting 2007. *En oversikt over cruisenæringen i Norge*
- Horwath Consulting 2008. *Cruiseturisme I Sogn og Fjordane.*
- Horwath Consulting/ TØI 2006. *Analyse cruise til Nordkapp.*
- IMO 2009. *Prevention of Air Pollution from Ships, Second IMO GHG Study.* London: International Maritime Organization. [www.imo.org/includes/blastDataOnly.asp/data\\_id%3D26047/INF-10.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D26047/INF-10.pdf)
- Jacobsen, J. K. S. & Grue, B. 1997. *Nasjonale turistveger i Norge (National scenic roads in Norway).* Oslo: Institute of Transport Economics.
- Jacobsen, J. K. S. 2004. Roaming romantics: solitude-seeking and self-centredness in scenic sightseeing. *Scandinavian Journal of Hospitality and Tourism* 4(1):5–23.
- Kjensli, B. 2005. *Cruiseundersøkelse i Lofoten.* Report/project 501. Leknes: Poseidon Consulting AS.
- Larsen, S., Wolff, K., Marnburg, E., and Ogaard, T. 2013. Belly full, purse closed. Cruise line passengers’ expenditures. *Tourism Management Perspectives* 6: 142-148.
- Morrison, A. M. 1989. *Hospitality and travel marketing.* Albany, NY: Delmar.
- Urry, J. 1990. *The tourist gaze: leisure and travel in contemporary societies.* London: Sage.
- Walnum, H.J. 2011. Energy use and CO2 emissions from cruise ships – A discussion of methodological issues. Sogndal: Western Norway Research Institute.
- WEF 2009. *Towards a Low Carbon Travel & Tourism Sector.* Davos: World Economic Forum.
- Winther, P.-E. and Dybedal, P. 2006: *Analyse av cruiseturismens betydning for Oslo.* Oslo: Horwath Consulting AS, Institute of Transport Economics.